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EXAMINER

LAROSE, COLIN M

ART UNIT PAPER NUMBER

2623

DATE MAILED: 08/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/845,349

Applicant(s)

ISHII, HIROTOMO

Examiner

Colin M. LaRose

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 14 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 13-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 4.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election with traverse of Group I (claims 1-12) in the reply filed on 14 June 2004 is acknowledged. The traversal is on the ground(s) that there would not be a serious burden on the Examiner to examine both groups of claims at the same time. This is not found persuasive because, as noted in paper 5, the claimed steps for binarizing the image are different and distinct for Groups I and II and, as a result, they would require different searches.

The requirement is still deemed proper and is therefore made final.

### ***Claim Objections***

2. Claim 7 is objected to because of the following informalities: there is insufficient antecedent basis for "the image element." For examination purposes, claim 7 is presumed to depend from claim 6. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 2, 6-8, and 12 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent 6,766,056 by Huang et al. ("Huang").

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Regarding claims 1, 8, and 12, Huang discloses an image processing apparatus/medium/method (12, figure 1) comprising:

an input unit (scanner 11, figure 1) for inputting image data of an image composed of a plurality of pixels, each having a color data (color image data is input to the pixel buffer pipe 42 via an input device; column 6, lines 19-21);

a storage unit (42, figure 4) for storing a first condition on absolute positions of pixels in the image and a second condition on positions of pixels relative to a target pixel (first condition: the pixel buffer pipe receive subsampling signals from the sub-sample control module 41 and subsamples the image based on those signals; the resulting image is a down-sampled version of the original that contains only a subset of the original pixels; the pixels to be retained after subsampling constitute the first condition on absolute positions of pixels in the image; see column 6, lines 22-30 and 50-54; second condition: in figure 5, a number of “lag” pixels relative to a target pixel (“0”) are identified; the designation of these pixels constitutes the second condition on positions of pixels relative to a target pixel; see column 6, lines 55-67);

a binarization unit (43, figure 4) for binarizing the target pixel based upon a color data of the target pixel (i.e. target pixel is compared to threshold) and that of at least one related pixel to the target pixel in the image (i.e. related pixels are used to generate the threshold) to generate a binarized value, the at least one related pixel satisfying the first and second conditions stored in said storage unit (column 7, lines 5-25: the threshold for binarizing the target pixel is generated based on the related (lag) pixels, which must satisfy the first and second conditions – that is, the related pixels are present in the subsampled image (absolute condition), and they meet the condition of being “lag” pixels); and

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a determination unit (22, figure 2) for determining whether or not the image has a specified pattern, based upon binarized values obtained by said binarization unit (i.e. the mark detection module 22 determines whether a specified patterns exists).

Regarding claim 2, Huang discloses the binarization unit obtains a color data for binarization based upon the color data of the target pixel and that of the at least one related pixel (column 7, lines 12-31: the “color data” obtained for binarization includes the pixel value of the target pixel, and a color threshold that is based on the related pixels), and generates the binarized value based upon whether or not the value indicated by the color data for binarization is within a predetermined range (column 7, lines 20-31 the binarized value of the target pixel is generated based upon whether the target pixel’s color value is within the color range for a designated mark).

Regarding claim 6, Huang discloses the determination unit determines whether or not an image element having a shape similar to the specified pattern exists, based upon the binarized values, and when the image element is determined to exist, finely examines the shape of the image element to determine whether or not the specified pattern exists (column 12, lines 42-55: the mark detector detects circle patterns, and then finely examines those circle patterns by gathering statistical parameters).

Regarding claim 7, Huang discloses that when the image element is determined to exist, the determination unit inhibits to generate an image resembling closely the image received from the input unit (column 21, lines 45-52: e.g. photocopier functions are disabled upon detecting the image element).

*Claim Rejections - 35 USC § 103*

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 4 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huang in view of U.S. Patent 5,434,953 by Bloomberg.

Regarding claims 4 and 10, Huang discloses subsampling the image in order to reduce the image size, thereby defining a first condition (column 6, lines 22-30), and Huang also discloses a pixel which exists in a straight line including the target pixel extending in the predetermined direction and which is positioned within a predetermined range from the target pixel is the pixel defined in the second condition (figure 5: "lag" pixels, which are positioned within a predetermined range from the target, define the second condition).

Huang does not expressly disclose that every N pixel from a pixel at an edge of the image in a predetermined direction within the image is the pixel defined in the first condition.

However, at the time the invention was made, it was obvious to one skilled in the art that subsampling was typically effected by maintaining every Nth pixel from the edge of the original image in a predetermined direction (e.g. horizontal and vertical directions). Bloomberg teaches that a typical subsampling operation involves dividing an image into square blocks of pixels and then selecting a predetermined pixel from each block. The subsampled image is formed by

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combining each of the selected pixels, resulting in an image that includes every Nth pixel from the original image.

7. Claims 3 and 9 rejected under 35 U.S.C. 103(a) as being unpatentable over Huang in view of U.S. Patent 5,687,252 by Kanno et al. ("Kanno").

Regarding claim 9, Huang discloses the binarization step includes:

obtaining a color data for binarization based upon the color data of the target pixel and that of the at least one related pixel (column 7, lines 12-31: the "color data" obtained for binarization includes the pixel value of the target pixel, and a color threshold that is based on the related pixels), and

generating the binarized value based upon whether or not the value indicated by the color data for binarization is within a predetermined range (column 7, lines 20-31 the binarized value of the target pixel is generated based upon whether the target pixel's color value is within the color range for a designated mark).

Regarding claim 3 and further in regards to claim 9, Huang does not disclose the color data for binarization is obtained based upon an average value between the value of the color data of the target pixel and that of the at least one related pixel.

Rather, Huang discloses that the threshold is obtained based on only the related (lag) pixels.

Kanno discloses an image processing system that includes the binarization of image data, similar to the system of Huang. In particular, Kanno discloses a number of different binarization processes that may be carried out in order to binarize image data (column 4, lines 1-13). Method

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(5) involves calculating a threshold based on average values of both a target pixel and related pixels (see figure 9 and column 9, lines 65+). The average value of the target pixel and its related pixels within a predetermined range is then used as a threshold for binarizing the target pixel.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Huang by Kanno to include the target pixel in the calculation of the average value to be used as the threshold, since Kanno shows that calculating the average value based on both the target pixel and related pixels for the purposes of generating a threshold for binarization of a single target pixel is conventional.

8. Claims 5 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huang.

Regarding claims 5 and 11, Huang discloses storing a third condition defining a position relative to the target pixel in a predetermined direction, and wherein the at least one related pixel includes a pixel satisfying the third condition (threshold determining unit 45, figure 4, stores a threshold, which is a third condition). Huang does not expressly teach that a user specifies the threshold, however, it would have been obvious to those skilled in the art that, as a matter of convenience, a user specifies a threshold used for binarization.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Colin M. LaRose whose telephone number is (703) 306-3489. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia



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Au, can be reached on (703) 308-6604. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the TC 2600 Customer Service Office whose telephone number is (703) 306-0377.

CML

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28 July 2004

A handwritten signature in black ink, appearing to be 'CML', is located to the right of the typed name and date.